Please find below and/or attached an Office communication concerning this application or proceeding.

PTO-90C (Rev. 10/03)

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE _3_ MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1) ☒ Responsive to communication(s) filed on _27 October 2003_.

2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.

3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under _Ex parte Quayle_, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4) ☒ Claim(s) _1-26_ is/are pending in the application.

    4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5) ☒ Claim(s) _13,14,17 and 24_ is/are allowed.

6) ☒ Claim(s) _1-12,15,16,18-23,25 and 26_ is/are rejected.

7) ☐ Claim(s) _____ is/are objected to.

8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9) ☐ The specification is objected to by the Examiner.

10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. §§ 119 and 120

12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a) ☐ All b) ☐ Some * c) ☐ None of:

      1. ☐ Certified copies of the priority documents have been received.

      2. ☐ Certified copies of the priority documents have been received in Application No. _____.

      3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

    * See the attached detailed Office action for a list of the certified copies not received.

13) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

    a) ☐ The translation of the foreign language provisional application has been received.

14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)

2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____.

4) ☐ Interview Summary (PTO-413) Paper No(s). _____.

5) ☐ Notice of Informal Patent Application (PTO-152)

6) ☐ Other: .

DETAILED ACTION

Response to Arguments

Applicant's arguments with respect to claims 1 – 26 have been considered but are moot in

view of the new ground(s) of rejection.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all

obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in
> section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are
> such that the subject matter as a whole would have been obvious at the time the invention was made to a person
> having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the
> manner in which the invention was made.

Claims 1 – 12, 15, 16, 18 – 23, and 25 are rejected under 35 U.S.C. 103(a) as being

unpatentable over Fitzgerald (US Patent No. 6,421,720) in view of Kerr (US Patent No.

5,844,600).

Regarding claims 1 – 3, 9 – 12, 15, and 18 – 21, Fitzgerald discloses a gateway apparatus

and method (18) including an encoder (22 see col. 2 lines 49-55) that encodes audio signals into

audio packets and a packetizer (24 see col. 2 lines 66-67 and col. 3 lines 1-10) for converting the

audio packets into network packets ready for transmission. The packetizer also monitors the
Processor/monitor

congestion occurring in the packet network by way of an end-to-end delay signal, and the

gateway apparatus (18) adjusts the amount of audio data encoded into the audio packet

accordingly. Fitzgerald further discloses the size of the packet payload being dynamically

adapted according to the amount of end-to-end congestion, which is inversely proportional to the

packet rate (i.e. higher congestion, the lower the packet rate), in the packet network. Since the

cpu utilization is a function of congestion (packet rate), it is inherent to Fitzgerald that the packet

size is adjusted according to the cpu utilization (see col. 1 lines 48-65). Fitzgerald further

discloses increasing the payload size within the audio packet when the available bandwidth is

low (i.e. CPU utilization is high). See col. 5 lines 5 – 10.

Fitzgerald does not expressly disclose an interface buffer for storing the audio packets, or

the utilization capacity depending on the free space in the buffer.

Kerr discloses an audio packet buffer for storing audio packets. See col. 5 line 52 and

col. 6 lines 17-19 and 33 – 34.

At the time the invention was made it would have been obvious to one of ordinary skill in

the art to include the audio packet buffer, as disclosed by Kerr, into the invention as disclosed by

Fitzgerald. The decreased packet rate and increased congestion would result in a decrease in the

free buffer space within the audio buffer, because the increased congestion would require more

packets to be queued before being output. It is therefore inherent to Fitzgerald in view of Kerr

that the utilization capacity of the gateway is dependent upon the free space, or lack thereof, in

the buffer. Furthermore, a packet buffer is responsible for holding packets in place while the

processor processes the preceeding packets in order to help prevent packet loss due to discarding.

Therefore, it is inherent to Fitzgerald in view of Kerr that if the CPU utilization is at a maximum

(threshold), the available packet buffer space will be zero thereby causing packet loss, and the

need to decrease the packet payload. On the other hand when the CPU utilization decreases, the

available buffer space will increase (above a threshold), and the packet payloads will decrease.

One of ordinary skill in the art would have been motivated to do this in order to prevent

information loss from over saturation of the packetizer (processor) by controlling the movement

of audio packets.

Regarding claim 4, Fitzgerald in view of Kerr discloses all of the limitations as recited

above with respect to claim 3.

Fitzgerald in view of Kerr does not expressly disclose the available space in the free

queue being inversely proportional to the number of packets in the buffer waiting to be

transmitted.

Although Fitzgerald in view of Kerr does not expressly disclose the available space in the

free queue being inversely proportional to the number of packets in the buffer waiting to be

transmitted, this would clearly be evident if the free queue and the buffer were part of the same

memory batch within the system. Furthermore, partitioning the memory into to two parts to

contain the free queue and the buffer, would clearly provide the functionality needed within the

queue and buffer while reducing the complexity of the invention by way of only containing one

combination buffer/queue memory instead of multiple memories. Therefore, at the time the

invention was made it would have been obvious to one of ordinary skill in the art to include the free queue and the buffer space in the same memory, in the invention as disclosed by Fitzgerald in view of Kerr.

One of ordinary skill in the art would have been motivated to do this in order to reduce the complexity of the system by locating both the queue and buffer within the same memory.

Regarding claim 5, Fitzgerald further discloses adapting the size of the packet payloads according to the monitored level of network congestion (col. 1 lines 48-65). The level of congestion in a network is primarily based on the performance of its elements. Performance is dependent upon the amount of and ability to process the traffic input to these elements. An increase in the number of audio signals input to the switching element (as disclosed by Fitzgerald) would constitute an increase in data/ voice traffic and a decrease the performance of the network switch. Furthermore causing an increase in network congestion.

Regarding claim 6, Fitzgerald in view of Kerr discloses all of the limitations as recited above in claim 1.

Fitzgerald does not disclose including multiple encoders to encode different incoming calls.

At the time the invention was made it would have been obvious to one of ordinary skill in the art to include multiple encoders in the invention as disclosed by Fitzgerald in view of Kerr.

One of ordinary skill in the art would have been motivated to do this to enable the ability to encode multiple audio signals at a time facilitating multiple communications lines between multiple parties. This would provide for a more marketable and profitable invention.

Regarding claim 7, Fitzgerald further discloses encoding 20 milliseconds of the audio signal when the network congestion is below a first threshold, 40 milliseconds when network congestion rises above a first threshold, and 100 milliseconds or more when the network congestion rises above a second threshold great than the first. See col. 4 lines 16-40.

Regarding claim 8, Fitzgerald further discloses the audio signal being received from a telephone handset, and transmitted as IP packets over an IP network (Packet Network 16). Fitzgerald teaches the audio signal being converted into packets fit for VOIP (Voice over Internet Protocol) applications, inherently making them suitable for transmission over an IP network. Furthermore Fitzgerald discloses multiple telephone sets connected to handsets connected to the gateway (18).

Fitzgerald in view of Kerr does not expressly disclose the audio signal being received over an incoming PSTN call.

At the time the invention was made it would have been obvious to one of ordinary skill in the art receive audio signals from a PSTN in the invention as disclosed by Fitzgerald.

One of ordinary skill in the art would have been motivated to do this in order to provide for large amounts of telephones to be connected to the invention, as disclosed by Fitzgerald in view of Kerr, providing for increased usage and marketability.

Regarding claim 25, Fitzgerald further discloses the formatting including attaching IP, UDP, and RTP headers. See col. 1 lines 25-31.

Regarding claim 16, Fitzgerald in view of Kerr discloses all of the limitations recited above for the method (claims 1 and 2) to be stored in a computer program (claim 16).

Fitzgerald in view of Kerr does not expressly disclose a computer program including the method that is implemented by the communications system as disclosed above.

Although Fitzgerald in view of Kerr does not expressly disclose a computer program including the method that is implemented by the communications system, this would clearly provide an efficient way to implement the invention on multiple communication systems and apparatus'. Therefore, at the time the invention was made it would have been obvious to one of

ordinary skill in the art to store, in a computer program, the instructions for the method

implemented by the system as disclosed above.

One of ordinary skill in the art would have been motivated to do this in order to distribute

the method, as disclosed by Fitzgerald in view of Kerr more efficiently and therefore making the

invention more marketable.

Allowable Subject Matter

Claims 13, 14, 17, and 24 are allowed.

Conclusion

Any inquiry concerning this communication or earlier communications from the

examiner should be directed to Andrew M Waxman whose telephone number is (703) 305-8086.

The examiner can normally be reached on 9:00 - 5:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's

supervisor, Chi Pham can be reached on (703) 305-4378. The fax phone number for the

organization where this application or proceeding is assigned is (703) 872-9314.

Any inquiry of a general nature or relating to the status of this application or proceeding

should be directed to the receptionist whose telephone number is (703) 305-4700.

Andrew M. Waxman

CHI PHAM
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2600